

CLAIMS

1. (Previously Presented) A method for designing custom, primarily decorative stonework, comprising:

selecting at least one unit of a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, and wherein the at least one unit comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

selecting at least a primary view of the unit, wherein the primary view depicts an overall view of the at least one arrangement of the plurality of the parts;

selecting at least one profile of a plurality of profiles, wherein each profile of the plurality of profiles corresponds to at least a cross-sectional view of the at least one arrangement of the plurality of the parts;

inputting the at least one control dimension;

parametrically calculating, using the at least one parametric equation, the at least one physical dimension of the plurality of parts and the at least one arrangement of the plurality of parts based upon the input of the at least one control dimension; and

generating at least one scaled drawing, wherein the scaled drawing at least has identifiers that correspond to the at least one physical dimension of the plurality of parts of the at least one unit and the at least one arrangement of the plurality of parts of the at least one unit.

2. (Original) The method of Claim 1, wherein the step of selecting the at least one unit of the plurality of units further comprises selecting from a database organized by parts, units, and profiles.

3. (Original) The method of Claim 1, wherein the step of selecting the at least one unit of the plurality of units further comprises selecting the at least one unit from a database wherein each part of the plurality of parts that comprise each unit of the plurality of units is at least referenced by a part identifier.

4. (Previously Presented) The method of Claim 1, wherein the step of generating the scaled drawing further comprises generating a scaled drawing that is at least configured to be a Computer Aided Design (CAD) drawing.

5. (Previously Presented) The method of Claim 4, wherein the step of generating at least one scaled drawing further comprises:

accessing a computer database that is at least stored in a computer memory;

retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

retrieving CAD drawings for each of the plurality of part identifiers;

modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

rendering the CAD drawings; and

plotting or printing the CAD drawings.

6. (Previously Presented) A method for electronically custom designing primarily decorative stonework, comprising:

selecting at least one unit from a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, from a computer database stored in a computer memory, wherein each unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

wherein the plurality of units are organized such that the plurality of parts that comprise each unit is logically associated to each of the respective units;

selecting at least one profile of a plurality of profiles, wherein each one profile of the plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

entering the control dimension into a computer that is at least coupled to the computer memory;

calculating the at least one physical dimension of the plurality of parts and the at least one arrangement of the plurality of parts, wherein the at least one parametric equation is at least employed and wherein the at least one parametric equation is at least configured to utilize summing means and squaring means;

accessing the computer database that is at least stored in a computer memory;

retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

retrieving CAD drawings for each of the plurality of part identifiers;
modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;
rendering the CAD drawings; and
plotting or printing the CAD drawings.

7. (Previously Presented) A computer program product for designing custom, primarily decorative stonework, the computer program product having a medium with a computer program embodied thereon, the computer program comprising:

computer program code for selecting at least one unit of a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, and wherein the at least one unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

computer program code for selecting at least a primary view, wherein the primary view depicts an overall view of the at least one arrangement of the plurality of the parts;

computer program code for selecting at least one profile of a plurality of profiles, wherein each profile of the plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

computer program code for inputting the at least one control dimension;

computer program code for parametrically calculating, using the at least one parametric equation, the at least one physical dimension of the plurality of parts and the at least one arrangement of the plurality of parts based upon the input of the at least one control dimension;

and

computer program code for generating at least one scaled drawing, wherein the scaled drawing at least has identifiers that correspond to the at least one physical dimension of the plurality of parts of the at least one unit and the at least one arrangement of the plurality of parts of the at least one unit.

8. (Original) The computer program product of Claim 7, wherein the computer program code for selecting the at least one unit of the plurality of units further comprises computer program code for selecting from a database organized by part, units, and profiles.

9. (Original) The computer program product of Claim 7, wherein the computer program code for selecting the at least one unit of the plurality of units further comprises computer program code for selecting the at least one unit from a database wherein each part of the plurality of parts that comprise each unit of the plurality of units is at least referenced by a part identifier.

10. (Original) The computer program product of Claim 7, wherein the computer program code for generating the scaled drawing further comprises computer program code for generating a scaled drawing that is at least configured to be a CAD drawing.

11. (Previously Presented) The computer program product of Claim 10, wherein the computer program code for generating at least one scaled drawing further comprises:

computer program code for accessing a computer database that is at least stored in a computer memory;

computer program code for retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

computer program code for retrieving CAD drawings for each of the plurality of part identifiers;

computer program code for modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

computer program code for rendering the CAD drawings; and

computer program code for plotting or printing the CAD drawings.

12. (Currently Amended) A computer program product for electronically custom designing primarily decorative stonework, the computer program, product having a medium with a computer program embodied thereon, the computer program comprising:

computer program code for selecting at least one unit from a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, from a computer database stored in a computer memory, wherein each unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

wherein the plurality of units are organized such that the plurality of parts that comprise each unit is logically associated to each of the respective units;

computer program code for selecting at least one profile of a plurality of profiles, wherein each profile of a plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

computer program code for entering the control dimension into a computer that is at least coupled to the computer memory[[,]];

computer program code for calculating the at least one physical dimension of each of the plurality of parts and the arrangement of the plurality of parts, wherein the at least one parametric equation is at least employed and wherein the at least one parametric equation is at least configured to utilize summing means and squaring means;

computer program code for accessing the computer database that is at least stored in a computer memory;

computer program code for retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

computer program code for retrieving CAD drawings for each of the plurality of part identifiers;

computer program code for modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

computer program code for rendering the CAD drawings; and

computer program code for plotting or printing the CAD drawings.

13. (Previously Presented) A processor for designing custom, primarily decorative stonework, the processor including a computer program comprising:

computer program code for selecting at least one unit of a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, and wherein each unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

computer program code for selecting at least a primary view, wherein the primary view at least depicts an overall view of the at least one arrangement of the plurality of the parts;

computer program code for selecting at least one profile of a plurality of profiles, wherein each profile of the plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

computer program code for inputting the at least one control dimension;

computer program code for parametrically calculating, using the at least one parametric equation, the at least one physical dimension of the plurality of parts and the at least one arrangement of the plurality of parts based upon the input of the at least one control dimension; and

computer program code for generating at least one scaled drawing, wherein the scaled drawing at least has identifiers that correspond to the at least one physical dimension of the plurality of parts of the at least one unit and the at least one arrangement of the plurality of parts of the at least one unit.

14. (Original) The computer program code of Claim 13, wherein the computer program code for selecting the at least one unit of the plurality of units further comprises computer program code for selecting from a database organized by part, units, and profiles.

15. (Original) The computer program code of Claim 13, wherein the computer program code for selecting the at least one unit of the plurality of units further comprises computer program code for selecting the at least one unit from a database wherein each part of the plurality of parts that comprise the at least one unit of the plurality of unit is at least referenced by a part identifier.

16. (Original) The computer program code of Claim 13, wherein the computer program code for generating the scaled drawing further comprises computer program code for generating a scaled drawing that is at least configured to be a CAD drawing.

17. (Previously Presented) The computer program code of Claim 16, wherein the computer program code for generating at least one scaled drawing further comprises:

computer program code for accessing a computer database that is at least stored in a computer memory;

computer program code for retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

computer program code for retrieving CAD drawings for each of the plurality of part identifiers;

computer program code for modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

computer program code for rendering the CAD drawings; and

computer program code for plotting or printing the CAD drawings.

18. (Previously Presented) A processor for electronically custom designing primarily decorative stonework, the processor including a computer program comprising:

computer program code for selecting at least one unit from a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, from a computer database stored in a computer memory, wherein each unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

wherein the plurality of units are organized such that the plurality of parts that comprise each unit is logically associated to each of the respective units;

computer program code for selecting at least one profile of the plurality of profiles, wherein each profile of a plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

computer program code for entering the control dimension into the computer that is at least coupled to the computer memory;

computer program code for calculating the at least one physical dimension of the plurality of parts comprising the at least one unit and the at least one arrangement of the plurality of parts, wherein the at least one parametric equation is at least employed and wherein the at least one parametric equation is at least configured to utilize summing means and squaring means;

computer program code for accessing the computer database that is at least stored in a computer memory;

computer program code for retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

computer program code for retrieving CAD drawings for each of the plurality of part identifiers;

computer program code for modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

computer program code for rendering the CAD drawings; and

computer program code for plotting or printing the CAD drawings.

19. (Previously Presented) An apparatus for custom designing primarily decorative stonework, comprising:

a unit selector, wherein the unit selector is at least configured to select at least one unit of a plurality of units, and wherein each unit of the plurality of units at least corresponds to a

primarily decorative architecture feature, and wherein the at least one unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

a primary view selector, wherein the primary view selector is at least configured to select at least a primary view, and wherein the primary view at least depicts an overall view of the at least one arrangement of the plurality of the parts;

a profile selector, wherein the profile selector is at least configured to select at least one profile of a plurality of profiles, and wherein the one profile of a plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

a data input channel, wherein the data input channel is at least configured to receive the at least one control dimension;

a calculation unit, wherein the calculation unit is at least configured to parametrically calculate, using the at least one parametric equation, the at least one physical dimension of the plurality of parts and the at least one arrangement of the plurality of parts based upon the input of the at least one control dimension; and

a drawing generator, wherein the drawing generator is at least configured to generate at least one scaled drawing, and wherein the scaled drawing at least has identifiers that correspond to the at least one physical dimension of the plurality of parts of the at least one unit and the at least one arrangement of the plurality of parts of the at least one unit.

20. (Original) The apparatus of Claim 19, wherein the unit selector further comprises computer program code for selecting from a database organized by parts, units, and profiles.

21. (Original) The apparatus of Claim 19, wherein the unit selector further comprises computer program code for selecting the at least one unit from a database wherein each part of the plurality of parts that comprise each unit of the plurality of units is at least referenced by a part identifier.

22. (Original) The apparatus of Claim 21, wherein the drawing generator further comprises computer program code for generating scaled drawings that are at least configured to be CAD drawings.

23. (Previously Presented) The apparatus of Claim 22, wherein the drawing generator further comprises:

computer program code for accessing a computer database that is at least stored in a computer memory;

computer program code for retrieving a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

computer program code for retrieving CAD drawings for each of the plurality of part identifiers;

computer program code for modifying the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

computer program code for rendering the CAD drawings; and

computer program code for plotting or printing the CAD drawings.

24. (Previously Presented) An apparatus for electronically custom designing primarily decorative stonework, comprising:

a unit selector, wherein the unit selector is at least configured to select at least one unit from a plurality of units, wherein each unit of the plurality of units at least corresponds to an architecture feature, from a computer database stored in a computer memory, wherein each unit of the plurality of units comprises:

a plurality of parts;

at least one parametric equation defining at least one physical dimension of the plurality of parts and at least one arrangement of the plurality of parts, wherein:

the at least one physical dimension comprises at least one measurement of the architecture feature;

the at least one physical dimension determines a relative size of at least two parts of the plurality of parts;

the at least one arrangement determines a relative position of at least two parts of the plurality of parts; and

the at least one physical dimension and the at least one arrangement determine the physical construction of the architecture feature; and

at least one control dimension comprising at least one measurement of the architecture feature, the at least one control dimension comprising an input of the at least one parametric equation;

and wherein the plurality of units are organized such that the plurality of parts that comprise each unit is logically associated to each of the respective units;

a profile selector, wherein the profile selector is at least configured to select at least one profile of a plurality of profiles, and wherein each profile of a plurality of profiles corresponds to at least a primary cross-sectional view of the at least one arrangement of the plurality of the parts;

an data input channel, wherein the data input channel is at least configured to receive the at least one control dimension of the at least one unit into the computer that is at least coupled to the computer memory, and wherein the at least one control dimension is at least configured to be unit-specific dimensional measurements;

a calculation unit, wherein the calculation unit is at least configured to calculate, using the at least one parametric equation, the at least one the physical dimension of the plurality of parts

comprising the at least one unit, and wherein the at least one parametric equation is at least configured to utilize summing means and squaring means;

a pointer, wherein the pointer is at least configured to access the computer database that is at least stored in a computer memory;

a data retriever, wherein the data retriever is at least configured to retrieve a plurality of part identifiers of the plurality of parts that comprise the at least one unit;

a drawing retriever, wherein the drawing retriever is at least configured to retrieve CAD drawings for each of the plurality of part identifiers; and

a CAD unit, wherein the CAD unit is at least configured to:

modify the CAD drawings for each part of the plurality of parts that comprise the at least one unit according to the at least one physical dimension of the plurality of parts and the arrangement of the plurality of parts;

render the CAD drawings; and

plot or print the CAD drawings.

25. (Previously Presented) The method of Claim 1, further comprising showing a correlation on the primary view between:

the at least one control dimension and the at least one physical dimension; and

the at least one control dimension and the at least one arrangement.

26. (Currently Amended) The computer program product of Claim 7, further comprising computer code for showing a correlation on the primary view between:

the at least one control dimension and at least one of the at least one physical dimension; and

the at least one control dimension and the at least one arrangement.

27. (Currently Amended) The processor of Claim 13, the computer program further comprising computer program code for showing a correlation on the primary view between:

the at least one control dimension and at least one of the at least one physical dimension; and
the at least one control dimension and the at least one arrangement.

28. (Currently Amended) The apparatus of Claim 19, further comprising a unit picture, wherein the unit picture is at least configured to show a correlation on the primary view between:

the at least one control dimension and at least one of the at least one physical dimension; and
the at least one control dimension and the at least one arrangement.

29. (New) A method for designing an architectural feature, comprising:
selecting a unit from a plurality of units, wherein the unit at least corresponds to an architectural feature, and wherein the unit comprises:

an arrangement of a plurality of parts;
at least one parametric equation defining at least one physical dimension of the arrangement, the physical dimension comprising a measurement of the arrangement; and
at least one control dimension comprising a measurement of the arrangement, the at least one control dimension comprising an input of the at least one parametric equation; inputting a value of the at least one control dimension; and

in response to inputting the value of the at least one control dimension, parametrically calculating, using the at least one parametric equation, the at least one physical dimension of the arrangement.

30. (New) The method of Claim 29, further comprising selecting a primary view of the unit from a plurality of primary views, wherein the primary view determines an overall shape of the arrangement of the plurality of the parts.

31. (New) The method of Claim 29, further comprising adding an additional feature to the unit.

32. (New) The method of Claim 29, further comprising selecting a profile of a plurality of profiles for a part of the plurality of parts, wherein the profile determines at least a two-dimensional view of the part.

33. (New) The method of Claim 32, wherein the arrangement determines at least a two-dimensional view of the unit comprising a spatial dimension different from the two dimensions in the two-dimensional view determined by the profile.

34. (New) The method of Claim 32, further comprising selecting an offset for the part, the offset comprising an amount of translation of the part from a default backing position.

35. (New) The method of Claim 34, wherein the selecting an offset comprises:

determining if the selected offset exceeds an error point, the error point comprising an indication of when an offset causes a feature of the profile to be disturbed or destroyed; and

if the selected offset exceeds the error point, generating a notification that the selected offset exceeds the error point.

36. (New) The method of Claim 29, wherein the arrangement determines a relative size of at least two parts of the plurality of parts.

37. (New) The method of Claim 29, wherein the arrangement determines a relative position within the arrangement of at least two parts of the plurality of parts.

38. (New) The method of Claim 29, wherein the arrangement determines at least a two-dimensional view of the unit.

39. (New) The method of Claim 38, further comprising:
graphically displaying the two-dimensional view of the unit;
graphically displaying a relationship between the at least one control dimension and the at least one physical dimension; and
graphically displaying a relationship between the at least one control dimension and the arrangement.

40. (New) The method of Claim 29, further comprising generating a drawing of the architectural feature from the unit.

41. (New) The method of Claim 29, further comprising constructing the architectural feature in accordance with the arrangement.

42. (New) A computer program product for designing an architectural feature, the computer program product embodied on a tangible computer readable medium, the computer program product comprising:

computer code for selecting a unit from a plurality of units, wherein the unit at least corresponds to an architectural feature, and wherein the unit comprises:

an arrangement of a plurality of parts;

at least one parametric equation defining at least one physical dimension of the arrangement, the physical dimension comprising a measurement of the arrangement; and

at least one control dimension comprising a measurement of the arrangement, the at least one control dimension comprising an input of the at least one parametric equation;

computer code for inputting a value of the at least one control dimension; and

computer code for, in response to inputting the value of the at least one control dimension, parametrically calculating, using the at least one parametric equation, the at least one physical dimension of the arrangement.

43. (New) The computer program product of Claim 42, further comprising computer code for selecting a primary view of the unit from a plurality of primary views, wherein the primary view determines an overall shape of the arrangement of the plurality of the parts.

44. (New) The computer program product of Claim 42, further comprising computer code for adding an additional feature to the unit.

45. (New) The computer program product of Claim 42, further comprising computer code for selecting a profile of a plurality of profiles for a part of the plurality of parts, wherein the profile determines at least a two-dimensional view of the part.

46. (New) The computer program product of Claim 45, wherein the arrangement determines at least a two-dimensional view of the unit with a spatial dimension different from the two dimensions in the two-dimensional view determined by the profile.

47. (New) The computer program product of Claim 45, further comprising computer code for selecting an offset for the part, the offset comprising an amount of translation of the part from a default backing position.

48. (New) The computer program product of Claim 47, wherein the computer code for selecting an offset comprises:

computer code for determining if the selected offset exceeds an error point, the error point comprising an indication of when an offset causes a feature of the profile to be disturbed or destroyed; and

computer code for, if the selected offset exceeds the error point, generating a notification that the selected offset exceeds the error point.

49. (New) The computer program product of Claim 42, wherein the arrangement determines a relative size of at least two parts of the plurality of parts.

50. (New) The computer program product of Claim 42, wherein the arrangement determines a relative position within the arrangement of at least two parts of the plurality of parts.

51. (New) The method of Claim 42, wherein the arrangement determines at least a two-dimensional view of the unit.

52. (New) The method of Claim 51, further comprising:
graphically displaying the two-dimensional view of the unit;
graphically displaying a relationship between the at least one control dimension and the at least one physical dimension; and
graphically displaying a relationship between the at least one control dimension and the arrangement.

53. (New) The computer program product of Claim 42, further comprising computer code for generating a drawing of the architectural feature from the unit.